IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): **David S. Taubman** Group Art Unit: **Not yet assigned**

Serial No.: **10/054201 (Continuation of 09/009,426)** Examiner: **Not yet assigned**

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Title: **Image Sensor for Digital Cameras**

Atty Docket: **10970780-4**

PRELIMINARY AMENDMENT

Commissioner for Patents
Washington, D.C. 20231

Sir:

Please consider the following preliminary amendments and remarks in connection with the subject application.

IN THE CLAIMS:

Please amend Claims 1-5 in the following manner and add Claims 6 and 7 (the marked up version of the amended claims are attached):

1. (Amended) An apparatus for recording an image, said apparatus comprising a two dimensional array of sensors each for detecting light intensity in one of at least three distinct spectral regions, the array comprising at least one block of sensors, each block having equal numbers of sensors corresponding to each of the distinct spectral regions, wherein the sensors in the at least one block are arranged such that any linear path within the array passing through a first sensor, passes through sensors corresponding to each of the at least three distinct spectral regions.

2. (Amended) The apparatus of Claim 1 wherein the linear path passes though the sensors corresponding to the at least three distinct spectral regions within a disk, centered at the first sensor and having a radius not larger than five times the center to center spacing of the block of sensors.

3. (Amended) The apparatus of Claim 1 wherein each of the sensors corresponding to one of the spectral regions in blocks not adjacent to an edge of the two-dimensional array is adjacent to a sensor corresponding to the same spectral region.

4. (Amended) The apparatus of Claim 1 wherein the number of different spectral regions is 3, the spectral regions being denoted by R(red), G(green), B(blue), and the sensors are arranged in a cyclic pattern of the rows or columns.

5. (Amended) The apparatus of Claim 1 wherein the number of different spectral regions is 4, the spectral regions being denoted by C(cyan), M(magenta), Y(yellow), and G(green), and the sensors are arranged in a cyclic pattern of permutations of rows or columns.

6. (New) The apparatus of Claim 4 wherein the pattern of rows and columns comprises four rows and three columns, wherein a first row of the pattern orders the sensors having a R sensor first, a G sensor second, and a B sensor third, a second row of the pattern orders the sensors having a B sensor first, a R sensor second, and a G sensor third, a third row of the pattern orders the sensors having a G sensor first, a B sensor second, and a R sensor third, and a fourth row of the pattern orders the sensors having a B sensor first, a R sensor second, and a G sensor third.

7. (New) The apparatus of Claim wherein the pattern of rows and columns comprises three rows and four columns, wherein a first row of the pattern orders the sensors having a C sensor first, a M sensor second, a Y sensor third, and a G sensor fourth, a second row of the pattern orders the sensors having a G sensor first, a C sensor second, a M sensor third, and a

Y sensor fourth, and a third row of the pattern orders the sensors having a Y sensor first, a G sensor second, a C sensor third, and a M sensor fourth.

Respectfully submitted,

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ATTACHMENT

1. (Amended) An apparatus for recording an image, said apparatus comprising a two-dimensional array of ~~color image~~ sensors~~,~~ each ~~color image sensor providing a measurement of a~~ for detecting light intensity in one of at least three distinct ~~a selected~~ spectral ~~region~~ regions, ~~said two-dimensional~~ the array comprising ~~a plurality of identical~~ at least one ~~blocks~~ block of ~~color~~ sensors, ~~said blocks being juxtaposed to form said array, each of said blocks~~ block having equal numbers of sensors ~~for~~ corresponding to each of ~~said~~ the distinct spectral regions, ~~the number of different spectral regions being at least three, said sensors in said blocks being arranged in a two-dimensional array having a plurality of rows and columns,~~ wherein ~~said~~ the sensors in ~~said~~ the at least one block ~~blocks~~ are arranged such that any ~~straight line~~ linear path within the array passing through a first sensor, passes through sensors corresponding to each of the at least three distinct spectral regions ~~of at least three different colors whose spectral responses are linearly independent~~.

2. (Amended) The apparatus of Claim 1 wherein ~~said straight line~~ the linear path passes though ~~said~~ the sensors corresponding to the ~~of~~ at least three ~~different colors~~ distinct spectral regions within a disk, centered at the first sensor and having a radius not larger than five times the center to center spacing of ~~said blocks~~ the block of sensors ~~in said two-dimensional array of sensors~~.

3. (Amended) The apparatus of Claim 1 wherein each of ~~said~~ the sensors corresponding to one of ~~said selected~~ the spectral regions in blocks not adjacent to an edge of ~~said~~ the two-dimensional array is adjacent to a sensor corresponding to the same spectral region.

4. (Amended) The apparatus of Claim 1 wherein the number of different spectral regions is 3, ~~said~~ the spectral regions being denoted by R(red), G(green), B(blue),~~;~~ and ~~said~~ the sensors ~~in said blocks~~ are arranged in ~~the following~~ a cyclic pattern ~~or in an arrangement comprising cyclic~~ of permutations of ~~the~~ rows or columns ~~of said pattern:~~ .

~~R~~	~~G~~	~~B~~
~~B~~	~~R~~	~~G~~
~~G~~	~~B~~	~~R~~
~~B~~	~~R~~	~~G~~

5. (Amended) The apparatus of Claim 1 wherein the number of different spectral regions is 4, ~~said~~ the spectral regions being denoted by C(cyan), M(magenta), Y(yellow), and G(green)~~;~~, and ~~said~~ the sensors ~~in said blocks~~ are arranged ~~in the following pattern, or~~ in a cyclic pattern of permutations of ~~the~~ rows or columns ~~of said pattern:~~.

~~C~~	~~M~~	~~Y~~	~~G~~
~~G~~	~~C~~	~~M~~	~~Y~~
~~Y~~	~~G~~	~~C~~	~~M~~